

CLAIMS

What is claimed is:

1. A method for detecting motion and filtering noise, said
5 method comprising:

(a) dividing an incoming image into a plurality of blocks;

(b) comparing said plurality of blocks to corresponding blocks
of a referred image and saving compared results into a declared data
structure;

10 (c) marking a compared result that exceeds a first
predetermined threshold, whereby a changed block corresponding to
said compared result can be indicated;

(d) grouping said compared result into an adjacent region
thereof, whereby changed blocks can be regionally grouped together;

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(e) calculating a deviation value of said region and comparing
said deviation value to a second predetermined threshold, whereby
motion can be detected and the noise caused from moire and the
interference resulted from an area brightness variation also can be
20 filtered out.

2. The method according to claim 1, wherein a size of said
plurality of blocks is 1%~4% of said incoming image.

3. The method according to claim 1, wherein step (b) comprises the comparing step as follows:

$$(\sqrt{(\sum (a_i - b_i)^2)}) / m * m,$$

where $i=0$ to $m*m$, m represents a side of said plurality of blocks, and a_i and b_i respectively represent a pixel value of a corresponding block of said incoming image and said referred image.

4. The method according to claim 3, wherein said referred image is a prior image to said incoming image.

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5. The method according to claim 3, wherein said referred image is a later image to said incoming image.

6. The method according to claim 1, wherein said first predetermined threshold is 1.

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7. The method according to claim 1, wherein step (d) comprises employing a double linked list to group said compared result.

8. The method according to claim 1, wherein step (e) comprises the calculating step as follows:

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$$(\sum |x_i - x_{avg}|) / n * x_{avg},$$

where $i=0$ to n , n represents a quantity of said compared result in said region, x_i represents said compared result, and x_{avg} represents

an average of said compared result in said region.

9. The method according to claim 1, wherein said second predetermined threshold is 0.35.

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10. A computer-readable medium encoded with computer program code for detecting motion and filtering noise, the program code causing a computer to execute a method comprising:

(a) dividing an incoming image into a plurality of blocks;

10 (b) comparing said plurality of blocks to corresponding blocks of a referred image and saving compared results into a declared data structure;

(c) marking a compared result that exceeds a first predetermined threshold, whereby a changed block corresponding to
15 said compared result can be indicated;

(d) grouping said compared result into an adjacent region thereof, whereby changed blocks can be regionally grouped together; and

(e) calculating a deviation value of said region and comparing
20 said deviation value to a second predetermined threshold, whereby motion can be detected and the noise caused from moire and the interference resulted from an area brightness variation also can be filtered out.

11. The medium according to claim 10, wherein a size of said plurality of blocks is 1%~4% of said incoming image.

12. The medium according to claim 10, wherein step (b)
5 comprises the comparing process as follows:

$$(\sqrt{(\sum (a_i - b_i)^2)}) / m * m,$$

where $i=0$ to $m*m$, m represents a side of said plurality of blocks, and a_i and b_i respectively represent a pixel value of a corresponding block of said incoming image and said referred image.

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13. The method according to claim 12, wherein said referred image is a prior image to said incoming image.

14. The method according to claim 12, wherein said referred
15 image is a later image to said incoming image.

15. The medium according to claim 10, wherein said first predetermined threshold is 1.

16. The medium according to claim 10, wherein step (d)
20 comprises employing a double linked list to group said compared result.

17. The medium according to claim 10, wherein step (e)

comprises the calculating process as follows:

$$(\sum |x_i - x_{avg}|) / n * x_{avg},$$

where $i=0$ to n , n represents a quantity of said compared result in said region, x_i represents said compared result, and x_{avg} represents
5 an average of said compared result in said region.

18. The medium according to claim 10, wherein said second predetermined threshold is 0.35.